

Appln: No. 09/718,225
Appeal Brief Dated June 3, 2003

SAR 13632

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No: 09/718,225
Applicant: Dennis Lee Matthies
Filed: November 21, 2000
Title: ELECTRODE STRUCTURE WHICH SUPPORTS SELF ALIGNMENT OF
LIQUID DEPOSITION OF MATERIALS
TC/A.U.: 2871
Examiner: Dung Nguyen
Confirmation No.: 3163
Docket No.: SAR 13632

APPEAL BRIEF UNDER 37 C.F.R. § 1.192

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

S I R :

This is an Appeal from the Final Rejection dated January 6, 2003, and the Advisory Action dated March 27, 2003, in which claims 1-4, 6, 7, 9, and 13-16 were rejected.

I. REAL PARTY IN INTEREST

The real Party In Interest in this matter is Sarnoff Corporation, 201 Washington Road, Princeton, NJ 08540-5300 by virtue of an assignment recorded on November 21, 2000, at Reel/Frame 011323/0627.

II. RELATED APPEALS AND INTERFERENCES

There are no related Appeals or Interferences related to the subject matter of this Appeal known to the applicant.

III. STATUS OF CLAIMS

Claims 1-30 are pending. Claims 1-4, 6, 7, 9, and 13-16 were rejected. Claims 5, 8, 10-12, and 17-30 were objected to. More specifically, claims 5, 8, 10-12 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 17-30 would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claims.

Applicant is appealing, and respectfully requests the reversal of, the rejection of claims 1-4, 6, 7, 9, and 13-16.

IV. **STATUS OF AMENDMENTS**

An amendment after final rejection was filed on March 11, 2003. In an Advisory Action dated March 27, 2003, the Examiner stated that for purposes of appeal, the amendments proposed in the amendment after final rejection will be entered, that claims 5, 8, 10-12, and 17-30 will remain objected to, that claims 1-4, 6, 7, 9, and 13-16 will remain rejected, and that claims 17-30 would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claims. The Advisory Action also stated that independent method claim 1 "do[es] not define over the art of record." The Advisory Action did not provide a reason for continuing the rejection of independent apparatus claim 2.

V. **SUMMARY OF INVENTION**

The present invention is embodied in electro-optic devices for use in large-area display devices which are formed as an array of tiled display devices. (page 1, lines 2-4). The display material is applied to the surface visible to the viewer. (page 11, line 26). The display section includes a transparent front plate which may be, for example, a glass plate. Transparent column electrodes are formed on the front plate by forming thin bands of a transparent conductor, such as indium-tin oxide (ITO), using well known processes. Display materials are deposited on top of the column electrodes to define the active area of the pixels. (page 13, lines 23-31).

Pixel forming elements of a display may be made from an organic light emitting diode (OLED) material, a thin organic polymer layer sandwiched between a pair of appropriately selected and patterned electrodes. OLED materials provide high brightness and high efficiency. Current flowing from one electrode to the other electrode causes the organic polymer to emit light. (page 8, lines 17-24).

OLED materials are often deposited while they are in a liquid state via a number of known techniques. Obtaining precise patterns for OLED materials formed using such standard liquid deposition techniques is usually difficult. (page 22, line 28-page 23, line 3). The invention pertains to structures which may be used to help with self-alignment of liquid deposition of materials. (page 23, lines 19-20).

Figure 9A illustrates an exemplary electrode structure which may be used to help with self-alignment of liquid deposition of materials. The electrode structure contains two layers, a first layer 2101 and a second layer 2102. (page 23, lines 20-21). When the second electrode layer of a two-layer electrode is patterned to substantially surround the active pixel areas, the second electrode layer may function as a levee to contain the OLED material during deposition. (page 23, lines 3-6). In Figure 9A, the second layer is deposited on top of the first layer leaving exposed those regions of the first electrode layer where it is desirable to deposit liquid materials. (page 23, lines 23-25). Figure 9B shows the second layer 2102 on top of the first electrode layer 2101. (page 23, lines 31-33). The second layer confines the display material. (page 23, line 34-page 24, line 2).

The first electrode layer (the transparent electrode layer 2101) may be formed from tin oxide, indium-tin oxide, a thin metal, or a conductive polymer such as polyaniline. (page 25, lines 1-5). The second layer may be formed from a number of sub-layers. These sub-layers may be conductors or insulators. The outer sub-layer, or the entire second layer 2102, may desirably be a low surface energy material, such as polyamide or Teflon, to assist in confinement of the liquid materials being deposited. (page 23, lines 26-30). The second electrode layer may also contain exposed sub-layers formed of low surface energy materials to assist in deposition of liquid materials upon the electrode. (page 25, lines 22-24)

The embodiment shown in Figure 10D features islands of the first transparent electrode material 2101, which are surrounded by, and connected to the second electrode layer 2102. This embodiment not only allows for improved conductivity of a transparent electrode but also is useful in assisting in the liquid deposition of materials, such as color filters or display material formed on the transparent electrode material 2101. (page 26, lines 22-27).

Figure 11D shows a cut-through view of Figure 10D as seen from line F11D. As shown in Figure 11D, the second electrode layer 2102 is on top of the first transparent electrode layer 2101. (page 27, lines 25-27). The island configuration of the first electrode layer 2101 is formed out of ITO. The second layer 2102 is then deposited in the pattern shown in Figure 10D with the uncovered portions of the ITO islands defining the desired active pixel areas. The second layer includes three sub-layers, one on top of the next: the first of titanium-tungsten; the second of aluminum; and the third of Teflon. (page 28, line 25-page 29, line 2).

VI. **ISSUES**

Whether claims 1, 2, 6, 9 and 13-16 are patentable under 35 U.S.C. §103(a) over U.S. Patent No. 3,863,332 to Leupp et al. (hereinafter "Leupp")

Whether claims 3, 4, and 7 are patentable under 35 U.S.C. §103(a) over Leupp.

VII. **GROUPING OF CLAIMS**

Claims 1, 2, 6, 9 and 13-16 are presented as standing together.

Claims 3, 4, and 7 are presented as standing together. These claims are patentable separately from claim 2 from which they depend for the reasons set forth in Section VIII(B).

VIII. **ARGUMENT**

A. **Claims 1, 2, 6, 9 and 13-16 are not subject to rejection under 35 U.S.C. § 103(a) as unpatentable over Leupp**

1. **The recitations of claim 2**

Claim 2 describes a two layer electrode structure to promote the deposition of a fluid in a precise island pattern. The structure recited in claim 2 is shown in Figures 10D and 11D. Claim 2 describes the structure as follows:

a first electrode layer [2101] formed on a surface;

at least one island of the fluid in the precise island pattern formed on the first electrode layer [2101] and in electrical contact with the first electrode layer [2101];

a second layer [2102] formed in contact with the first electrode layer [2101] and substantially surrounding the at least one island of the precise island pattern.

2. **A summary of Leupp**

Leupp relates to liquid crystal displays and to a method for fabricating the backplate for such displays. The backplate has spacers to maintain the thickness of the liquid crystal display uniform throughout. (col. 1, lines 5-9).

It uses a spacer lattice in the liquid crystal display illustrated in Figures 3 and 4. Those figures show back and front plates 13 and 15. An array of electrodes 19 is disposed on the surface of the backplate 13 and a common electrode is disposed on the inside surface of the front plate 15. (col. 2, lines 22-26; col. 4, lines 30-31) A nematic liquid crystal material is placed between the front and back panels. (col. 1, lines 66-68; col. 2, lines 21-22; 44-48; col. 5, lines 9-12) The spacer lattice 21 has walls that crisscross the surface of the back panel 13 between individual electrodes 19. As seen in Figures 3 and 4, the individual walls of the spacer lattice 21 include a base 23 which rises above the surfaces of the electrodes 19 and a top portion 25 whose heights are uniform relative to the surface of the backplate 13. (col. 2, lines 44-57).

Top portion 25 is an insulating layer deposited over the surface of substrate 13. (col. 4, lines 9-12). An aluminum layer 27 is evaporated on the layer 25. Consequently, the total thickness of layers 25 and 27 determines the total thickness of the liquid crystal display device. (col. 4, lines 23-28).

3. **The bases for the final rejection**

The bases for the final rejection of claims 1, 2, 6, 9 and 13-16 are not definitively stated within the Final Office Action itself. Instead, paragraph 3 of the Final Office Action states that the claims have been finally rejected "as stated in the previous office action." In order to understand the basis for the final rejection, it is important, therefore, to trace what the final rejection meant by referring to the "previous" Office Action.

As will be seen, the "previous" Office Action referred to in the final rejection is really the rejection mailed on May 8, 2002, not the rejection dated October 24, 2002. In the May 8, 2002 Office Action, claims 1-30 were rejected under 35 U.S.C. § 103(a) as unpatentable over Leupp. The next Office Action, dated October 24, 2002, was a premature final rejection, as explained below. In the October 24, 2002 rejection, claims 1, 2, 6, 9 and 13-16 were again rejected under 35 U.S.C. §103(a) as unpatentable over Leupp "as stated in the previous office action," in addition to some additional explanation. Claims 5, 8, 10-12 were objected to as being dependent upon a rejected base claim. Claims 17-30 were rejected, for the first time, under 35 U.S.C. § 112, second paragraph, as being incomplete. Paragraph 6 of the October 24, 2002 Office Action stated that claims 17-30 would be allowable if rewritten or amended to overcome the § 112 rejections. The October 24, 2002 final rejection was improper because the § 112 rejection was a new ground of rejection that was neither necessitated by applicant's

amendment to the claims nor based on information submitted in an information disclosure statement. MPEP 706.07(a).

In response to applicant's demonstration that the October 24, 2002 Final Office Action was premature, a new final rejection was mailed on January 6, 2003. This new final rejection was essentially word-for-word identical to the previous final rejection; except that the action regarding claims 17-30 was changed from a §112 rejection to an objection. The word-for-word nature of the October 24, 2002 rejection is demonstrated by its paragraph 5. Even though the October 24, 2002 Final Office Action changed the action regarding claims 17-30 from a rejection to an objection, paragraph 5 of this Final Office Action continued to state that "[c]laims 17-30 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. §112, second paragraph, set forth in this Office Action." This apparent §112 rejection of claims 17-30 conflicted with the earlier statement in the second Final Office Action that claims 17-30 were objected to. Applicant has assumed that an objection was intended, rather than a §112 rejection. In addition, the January 6, 2003 Office Action again rejected claims 1, 2, 6, 9 and 13-16 under 35 U.S.C. § 103(a) as unpatentable over Leupp "as stated in the previous office action," in addition to the same additional explanation that had been provided in the first Final Office Action.

Because of the nearly identical wording of the May 8 and October 24, 2002 rejections, the above chronology shows that "the previous office action" upon which claims 1, 2, 6, 9 and 13-16 have now been finally rejected is the Office Action mailed May 8, 2002. Therefore, applicant's brief will refer to the May 8, 2002 Office Action as well as to the supplemental reasons for final rejection contained in the second Final Office Action mailed January 6, 2003.

Regarding claim 2, the May 8, 2002 Office Action contended that Leupp discloses a first electrode layer 19 formed on a surface 13; a second conductor layer (spacer 25/33) in contact with the first transparent electrode layer and a liquid crystal layer in a precise pattern as shown in Figure 3 of Leupp. Relying on *In re Van Geuns*, 26 USPQ 2d 1057 (Fed. Cir. 1993), the Final Office Action stated that claims are interpreted in light of the specification but that limitations from the specification cannot be read into the claims. Accordingly, in its supplemental reasons for rejection provided in the second Final Office Action, the USPTO contended that line 6 of claim 2 cannot be read to mean "a second layer of the at least one electrode" because the quoted phrase is not actually recited in claim 2. The Final Office Action

accordingly repeated its position that line 6 of claim 2 is met by second layer 25 of Leupp formed in contact with the first electrode layer 19 of Leupp.

Applicant agrees that the phrase recited by the Final Office Action is not recited in claim 2. Instead, line 6 of claim 2 recites: "a second layer formed in contact with the first electrode layer." It is to be noted that the phrase attributed by the Final Office Action to claim 2, is actually recited in claim 1.

4. **A comparison of claim 2 with Leupp demonstrates that the final rejection must be reversed**

Claim 2 recites, in part, "a first electrode layer formed on a surface." The Office Action asserts that "a first electrode layer" is met by element 19 in Leupp. Applicants disagree with this assertion. The phrase "a first electrode layer formed on a surface" must be put into the context of the recitations in the preamble. The preamble of claim 2 recites that the invention is "[a] two layer electrode structure." This phrase in the preamble is a limitation which must be considered when construing claim 2 because it describes "what the inventors actually invented and intended to encompass by the claim." *In re Cruciferous Sprout Litigation*, 64 USPQ 2d 1202, 1204 (Fed. Cir. 2002). The phrase is a limitation because "it recites essential structure." *Id.* When read in the context of the preamble, "a first electrode layer" is one of the layers of "[a] two layer electrode structure" recited in the preamble.

When read in the context of the preamble, "a first electrode layer formed on a surface" in claim 2 can only be met by a prior art reference in which the "first electrode layer formed on a surface" is part of "[a] two layer electrode structure." In other words, a prior art electrode structure not having at least two layers does not disclose or suggest "[a] two layer electrode structure."

As noted above, the Final Office Action contends that element 19 in Leupp is "a first electrode layer formed on a surface." The Final Office Action is wrong because element 19 in Leupp is not "a first electrode layer formed on a surface." That is, element 19 is not one layer, of at least two layers, of "[a] two layer electrode structure" recited in the preamble of claim 2. Instead, element 19 is an entire electrode that is not divided into layers. Therefore, electrode 19 in Leupp does not meet the recitation of "a first electrode layer formed on a surface" in claim 2.

Claim 2 then recites "at least one island of the fluid. . .formed on the first electrode layer." Since Leupp does not have a "first electrode layer," Leupp also does not meet this recitation. Moreover, the liquid crystal material 11 of Leupp does not form discrete "islands." Instead, it forms a sea in which the electrodes 19 are submerged.

Finally, claim 2 recites "a second layer formed in contact with the first electrode layer and substantially surrounding the at least one island. . . ." The Final Office Action contends that this recitation is met by layer 25. The Final Office Action is wrong. This recitation in claim 2 must be considered in two parts. The first part is: "a second layer formed in contact with the first electrode layer." The second part is: "and substantially surrounding the at least one island."

Referring to the first part, claim 2 recites "a second layer formed in contact with the first electrode layer." Taken within the context of the preamble and within the context of the previous recitation in claim 2 of "a first electrode layer," this recitation must be understood to mean a second layer of the two layer electrode structure recited in the preamble. This interpretation is supported by the specification. (page 22, line 19; page 23, line 5; page 26, line 24)

Relying on *In re Van Geuns*, 26 USPQ 2d 1057 (Fed. Cir. 1993), the Final Office Action attempts to negate applicant's interpretation of this first part by contending that "a second layer" cannot be read as "a second layer of the at least one electrode." Based upon *Van Geuns*, the Final Office Action accuses applicant of improperly attempting to read features from the specification into claim 2. Applicant does not interpret claim 2 in the manner assumed by the Final Office Action and is not attempting to read features from the specification into claim 2. Instead, applicant's interpretation of claim 2 is based on the wording of claim 2 itself, which interpretation is supported by the specification.

In *Van Geuns*, the applicant contended that claim 42 had to be interpreted in light of the specification and the understanding of persons skilled in the NMR and MRI art. If that were done, he contended, the cited reference would not make claim 42 obvious. The Court disagreed because, it concluded, the actual wording of claim 42 did not expressly limit it to NMR or MRI apparatus. Furthermore, the Court stated, "limitations are not to be read into the claims from the specification." 26 USPQ 2d at 1059. However, this latter statement in *Van Geuns* is dictum. The Court's statement was not necessary to a disposition of the case because the Court concluded that claim 42 would have been obvious even if claim 42 had been limited to NMR or MRI. *Id.*

A more helpful explanation of whether an applicant is attempting improperly to incorporate the specification into the claim is found in *Comark Communications Inc. v. Harris Corp.*, 48 USPQ 2d 1001, 1005 (Fed. Cir. 1998). In that case, the Court "recognized that there is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification." *Id.* It also recognized that "claims are to be interpreted in light of the specification and with a view of ascertaining the invention" and that "the specification may aid the court in interpreting the meaning of disputed claim language." *Id.* Harris violated these principles by asking the Court to add a functional limitation to the claim based upon the specification. Specifically, he had asked the Court to limit the phrase "video delay circuit" to the functional purpose disclosed in the preferred embodiment. The Court refused to do so.

Applicant here does not ask that anything from the specification be incorporated into claim 2. As shown, the disputed recitation ("a second layer formed in contact with the first electrode layer") must be interpreted to be a second layer of "a two layer electrode structure" which also has "a first electrode layer formed on a surface." Applicant's interpretation of the disputed phrase is supported by the specification. In view of the very wording of claim 2 itself and the supporting specification, no other interpretation is possible.

Taking the disputed phrase out of context from the remainder of the claim and out of context of the specification, the Final Office Action contends that element 25 meets the disputed recitation. The Final Office Action is wrong. Element 25 is an insulating layer. (col. 4, lines 10-11). Leupp does not refer to layer 25 as an electrode, or as part of an electrode that is in contact with electrode 19. Instead, insulating layer 25 is part of a spacer between front and back electrodes 15, 19. (col. 4, lines 24-28). In fact, if spacer 25 were part of electrode 19, or if it were in electrical contact with electrode 19, it would short circuit front and back electrodes 15, 19 and render the display device useless. Accordingly, spacer 25 cannot meet the recitation in claim 2 of "a second layer formed in contact with the first electrode layer."

The second part of the disputed recitation in claim 2 is "a second layer. . . substantially surrounding the at least one island." The Final Office Action has ignored this part of the disputed recitation. It has not shown where this feature is disclosed or suggested in Leupp. Spacer 25 does not meet this part of claim 2 as shown in Figures 3 and 4 of Leupp. Figure 3 shows that there is "a lattice whose walls crisscross the surface of the back panel 13 between the individual electrodes." (col. 2, lines 50-51). That is, the lattice consists of individual walls that crisscross back panel

13. Figure 4 shows more detail of each individual wall that forms the lattice. "[T]he individual walls of the spacer lattice 21 include a base 23 which rises above the surfaces of the electrodes 19 and a top portion 25." (col. 2, lines 52-54). Thus, each individual wall includes a spacer 25. No one spacer 25 is capable of "surrounding the at least one island." A plurality of spacers is required to surround the fluid of the liquid crystal display. Therefore, spacer 25 does not disclose or suggest "a second layer. . .substantially surrounding the at least one island."

The Final Office Action has rejected claim 2 under 35 U.S.C. §103(a) as being unpatentable over Leupp. Section 103(a) precludes the grant of a patent

if the differences between the subject matter sought to be patented and the prior art are such that the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains.

One of the criteria required to establish a prima facie case of obviousness is some suggestion or motivation in the reference to modify the reference. MPEP § 706.02(j).

Claim 2 recites, in part: "at least one island of the fluid in the precise island pattern formed on the first electrode layer. . . ." Claim 2 does not recite how the liquid crystal layer is formed, whether by depositing or otherwise. Nevertheless, in discussing the basis for the rejection of claim 2, the May 8, 2002 Office Action states:

Although Leupp et al. do not explicitly disclose how the liquid crystal layer can be formed in the LCD device, one of ordinary skill in the art would have realized the desire to form a liquid crystal layer in an LCD device such as injecting, depositing, etc. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to form a liquid crystal layer in an LCD by depositing the liquid crystal material in a precise pattern because it is a common practice in the art to finish an LCD fabricating.

Because claim 2 does not recite how the liquid crystal layer is formed, the above-quoted basis for rejection does not apply to claim 2. Neither the May 8, 2002 Office Action nor the Final Office Action describes any allegedly obvious way that Leupp should be modified so that it would result in the invention that is described by claim 2. Therefore, the rejection of claim 2 under 35 U.S.C. §103(a) is without foundation. Even if the rejection had been made under a

provision of § 102, the rejection could not stand, for the reasons shown above. Thus, because claim 2 describes the second layer of the two layer electrode structure as being formed in contact with the first electrode layer and because, as described above, Leupp does not disclose or suggest a two-layer electrode structure but, instead, discloses a single electrode and a spacer, claim 2 is not subject to rejection under 35 U.S.C. § 103(a) in view of Leupp.

For all of the above reasons, the final rejection of claim 2 under 35 U.S.C. § 103(a) in view of Leupp must be reversed.

B. Claims 3, 4, and 7 are not subject to rejection under 35 U.S.C. § 103(a) as unpatentable over Leupp

Claim 3 recites:

The two layer electrode structure of claim 2, wherein the second layer is a low surface energy material.

As claim 3 depends from claim 2, based on the arguments presented in Section VIII(A) above, claim 3 is not subject to rejection, as claim 2 is not subject to rejection.

Claim 3 includes all the features and benefits of claim 2 and recites an additional feature which is neither disclosed nor suggested in the prior art, namely, that the second layer is a low surface energy material. Claim 3 is separately patentable from claim 2 because this feature is neither disclosed nor suggested by Leupp. Claim 4 depends from claim 3 and recites additional features about the low surface energy material. Claim 7 depends from claim 6 which, in turn, depends from claim 2. Claim 7 also recites additional features about the low surface energy material.

The bases for the final rejection of claims 3, 4, and 7 are not definitively stated within the Final Office Action itself. Instead, the Final Office Action states that the claims have been rejected "as stated in the previous office action." For the same reasons that were outlined above regarding claims 1, 2, 6, 9, and 13-16, the "previous" Office Action for claims 3, 4 and 7 was the one mailed on May 8, 2002. Page 3 of that Office Action states, in part:

Regarding claims 3, 4, 7, . . . Leupp et al. do not disclose the second layer having a low surface energy material (e.g., polyamide). It is notoriously well known in the art to use a polyamide based material for the spacer in an LCD device. It follows that the surface of the spacer layer would have a low surface energy as

claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to use a polyamide based material for the second layer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

The Office Action admits Leupp does not disclose a second layer of an electrode being a low surface energy material. The Office Action has not supplied any evidence to support its assertion that "[i]t is notoriously well known in the art to use a polyamide based material for the spacer layer in an LCD device." Although not expressly stated, the Office Action has relied on facts which it contends are common knowledge or which are subject to Official Notice. The rejection is therefore in violation of court precedent and USPTO policy stated in the memorandum of February 21, 2002 from Stephen G. Kunin, Deputy Commissioner for Patent Examination Policy to the Patent Examining Corps Technology Center Directors. The memorandum is entitled: "Procedures for relying on facts which are not of record as common knowledge or for taking Official Notice." A copy of the memorandum is attached hereto as Appendix B.

In *In re Zurko*, 59 USPQ 2d 1693, 1697 (Fed. Cir. 2001), the Court reversed the Board's decision that relied on "basic knowledge" or "common sense" to support an obviousness rejection, where there was no evidentiary support in the record for such a finding. Specifically, the Court held that "the Board cannot simply reach conclusion based on its own understanding or experience – or on its assessment of what would be basic knowledge or common sense. Rather, the Board must explicate its factual conclusions, enabling [the court] to verify readily whether those conclusions are indeed supported by 'substantial evidence' contained within the record."

Mr. Kunin's memorandum states, in part as follows:

While "official notice" may be relied on, as noted in MPEP §2144.03, these circumstances should be rare when an application is under final rejection. . . Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known. . .

It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art.

It is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based. . . (emphasis in original)

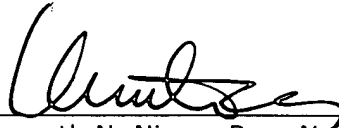
Applicant's response to the May 8, 2002 Office Action traversed the Official Notice, common-knowledge, assertion upon which this rejection was based. The subsequent Final Office Action neither provided documentary evidence to support the "common knowledge" rejection nor contended that applicant's traverse was inadequate. There is no evidence in the record that a low surface energy material could be used for the second layer of a two layer electrode structure to promote the deposition of a fluid in a precise island pattern and applicant is not aware of any such evidence.

For all of the above reasons, the final rejection of claims 3, 4, and 7 under 35 U.S.C. § 103(a) over Leupp must be reversed.

CONCLUSION

In view of the foregoing remarks, applicant submits that the grounds for rejection of claims 1-4, 6-7, 9, and 13-16 of the above-identified patent application are improper. Applicant respectfully requests that the Board reverse the Examiner's rejection of these claims.

Respectfully submitted,



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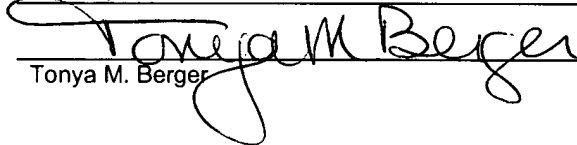
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June 3, 2003



Tonya M. Berger

1. A method of depositing at least one island of a liquid electronic material in a precise pattern on at least one electrode on a surface comprising the steps of;

forming a first layer of the at least one electrode on the surface to provide at least one electrical contact to the at least one island;

forming a second layer of the at least one electrode on a portion of the first layer of the at least one electrode substantially surrounding the precise pattern of the at least one island; and

depositing the liquid material on the at least one electrode so that the second layer of the at least one electrode constrains the liquid electronic material in the precise pattern.

2. A two layer electrode structure to promote the deposition of a fluid in a precise island pattern comprising;

a first electrode layer formed on a surface;

at least one island of the fluid in the precise island pattern formed on the first electrode layer and in electrical contact with the first electrode layer; and

a second layer formed in contact with the first electrode layer and substantially surrounding the at least one island of the precise island pattern.

3. The two layer electrode structure of claim 2, wherein the second layer is a low surface energy material.

4. The two layer electrode structure of claim 3, wherein the low surface energy material is at least one of Teflon and polyamide.

6. The two layer electrode structure of claim 2, wherein the second layer includes a plurality of sub-layers.

7. The two layer electrode structure of claim 6, wherein an exposed sub-layer of the second layer is a low surface energy material.

9. The two layer electrode structure of claim 2, wherein the first electrode layer is a transparent conducting material.

13. The two layer electrode structure of claim 2, wherein the first electrode layer is at least one of indium-tin oxide (ITO) polyaniline, and a thin metal.

14. The two layer electrode structure of claim 2, wherein the fluid is a liquid deposited material.

15. The two layer electrode structure of claim 2, wherein the fluid is at least one of a liquid crystal material, an organic light emitting diode (OLED) material, an electron transport layer material, a hole transport layer material, an insulator material, and a color filter material.

16. The two layer electrode structure of claim 2, wherein the fluid is a powder deposition material.



UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENT
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 202
www.uspto.gov

Date: February 21, 2002

To: Patent Examining Corps
Technology Center Directors

From: Stephen G. Kunin
Deputy Commissioner for Patent Examination Policy

Subject: Procedures for Relying on Facts Which are Not of Record as
Common Knowledge or for Taking Official Notice

This memorandum clarifies the circumstances in which it is appropriate to take official notice of facts not in the record or to rely on "common knowledge" in making a rejection.

Recent court decisions have affected the Office's practice of taking official notice of facts by relying on common knowledge in the art without a reference. Specifically, the Supreme Court recently changed the standard of review applied to decisions of the Board of Patent Appeals and Interferences and the Trademark Trial and Appeal Board on appeal to the U.S. Court of Appeals for the Federal Circuit. *Dickinson v. Zurko*, 527 U.S. 150, 50 USPQ2d 1930 (1999). As a result, the Federal Circuit now reviews findings of fact under the "substantial evidence" standard under the Administrative Procedure Act (APA), rather than the former "clearly erroneous" standard. *In re Gartside*, 203 F.3d 1305, 1315, 53 USPQ2d 1769, 1775 (Fed. Cir. 2000).¹ This change in the review standard has affected the Federal Circuit's view of when the court or the USPTO may take notice of facts without specific documentary evidence support.²

On remand from the Supreme Court, the Federal Circuit in *In re Zurko*, 258 F.3d 1379, 59 USPQ2d 1693 (Fed. Cir. 2001), reversed the Board's decision upholding a rejection under 35 U.S.C. 103 for lack of substantial evidence. Specifically, in *Zurko* and other recent decisions, the court criticized the USPTO's reliance on "basic knowledge" or "common sense" to support an obviousness rejection, where there was no evidentiary support in the record for such a finding.³ In light of the recent Federal Circuit decisions and the substantial evidence standard of review now applied to USPTO Board decisions, the following guidance is provided in order to assist the examiners in determining when it is appropriate to take official notice of facts without

supporting documentary evidence or to rely on common knowledge in the art in making a rejection, and if such official notice is taken, what evidence is necessary to support the examiner's conclusion of common knowledge in the art.

(1) Determine when it is appropriate to take official notice without documentary evidence to support the examiner's conclusion.

Official notice without documentary evidence to support an examiner's conclusion is permissible only in some circumstances. While "official notice" may be relied on, as noted in MPEP § 2144.03, these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113. Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known.⁴ In appropriate circumstances, it might not be unreasonable to take official notice of the fact that it is desirable to make something faster, cheaper, better, or stronger without the specific support of documentary evidence. Furthermore, it might not be unreasonable for the examiner in a first Office action to take official notice of facts by asserting that certain limitations in a dependent claim are old and well known expedients in the art without the support of documentary evidence provided the facts so noticed are of notorious character and serve only to "fill in the gaps" which might exist in the evidentiary showing made by the examiner to support a particular ground of rejection.⁵

It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art.⁶

It is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based.⁷ As the court held in *Zurko*, an assessment of basic knowledge and common sense that is not based on any evidence in the record lacks substantial evidence support.⁸

(2) If official notice is taken of a fact, unsupported by documentary evidence, the technical line of reasoning underlying a decision to take such notice must be clear and unmistakable.

Ordinarily, there must be some form of evidence in the record to support an assertion of common knowledge.⁹ In certain older cases, official notice has been taken of a fact that is asserted to be "common knowledge" without specific reliance on documentary evidence where the fact noticed was readily verifiable, such as when other references of record supported the noticed fact, or where there

was nothing of record to contradict it.¹⁰ If such notice is taken, the basis for such reasoning must be set forth explicitly. The examiner must provide specific factual findings predicated on sound technical and scientific reasoning to support his or her conclusion of common knowledge.¹¹ The applicant should be presented with the explicit basis on which the examiner regards the matter as subject to official notice and be allowed to challenge the assertion in the next reply after the Office action in which the common knowledge statement was made.

(3) If applicant challenges a factual assertion as not properly officially noticed or not properly based upon common knowledge, the examiner must support the finding with adequate evidence.

To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art.¹² A general allegation that the claims define a patentable invention without any reference to the examiner's assertion of official notice would be inadequate. If applicant adequately traverses the examiner's assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained.¹³ If the examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. See 37 CFR 1.104(d)(2).

If applicant does not traverse the examiner's assertion of official notice or applicant's traverse is not adequate, the examiner should clearly indicate in the next Office action that the common knowledge or well-known in the art statement is taken to be admitted prior art because applicant either failed to traverse the examiner's assertion of official notice or that the traverse was inadequate. If the traverse was inadequate, the examiner should include an explanation as to why it was inadequate.

(4) Determine whether the next Office action should be made final.

If the examiner adds a reference in the next Office action after applicant's rebuttal, and the newly cited reference is added only as directly corresponding evidence to support the prior common knowledge finding, and it does not result in a new issue or constitute a new ground of rejection, the Office action may be made final. If no amendments are made to the claims, the examiner must not rely on any other teachings in the reference if the rejection is made final. If the newly cited reference is added for reasons other than to support the prior common knowledge statement and a new ground of rejection is introduced by the examiner that is not necessitated by applicant's amendment of the claims, the rejection may not be made final. See MPEP § 706.07(a).

(5) Summary.

Any rejection based on assertions that a fact is well-known or is common knowledge in the art without documentary evidence to support the examiner's conclusion should be judiciously applied. Furthermore, as noted by the court in *Ahlert*, any facts so noticed should be of notorious character and serve only to "fill in the gaps" in an insubstantial manner which might exist in the evidentiary showing made by the examiner to support a particular ground for rejection. It is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record as the principal evidence upon which a rejection was based.¹⁴

MPEP § 2144.03 will be revised accordingly in the upcoming revision to be consistent with this memo.

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¹ The Supreme Court has described substantial evidence review in the following manner:

Substantial evidence is more than a mere scintilla. It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion...Mere uncorroborated hearsay or rumor does not constitute substantial evidence.

Consolidated Edison Co. v. NLRB, 305 U.S. 197, 229-30 (1938)(quoted in *Gartside*, 203 F.3d at 1312, 53 USPQ2d at 1773). "'Substantial evidence' review involves examination of the record as a whole, taking into account evidence that both justifies and detracts from an agency's decision." *Gartside*, 203 F.3d at 1312, 53 USPQ2d at 1773 (citing *Universal Camera Corp. v. NLRB*, 340 U.S. 474, 487-88 (1951)). Furthermore, the Supreme Court has also recognized that "the possibility of drawing two inconsistent conclusions from the evidence does not prevent an administrative agency's finding from being supported by substantial evidence." *Consolo v. Federal Maritime Comm'n*, 383 U.S. 607, 620 (1966) (quoted in *Gartside*, 203 F.3d at 1312, 53 USPQ2d at 1773).

² See *Packard Press, Inc. v. Hewlett-Packard Co.*, 227 F.3d 1352, 1360, 56 USPQ2d 1351, 1356 (Fed. Cir. 2000) (questioning authority to take judicial notice for the first time on appeal in light of the APA standard of review established by *Dickinson v. Zurko*, 527 U.S. at 165, 50 USPQ2d at 1937). Although the substantial evidence standard is deferential to the agency's decision, it imposes certain evidentiary requirements that must be met by the agency in formulating a decision. The Federal Circuit explained that "[i]n appeals from the Board, we have before us a comprehensive record that contains the arguments and evidence presented by the parties, including all of the relevant information upon which the board relied in rendering its decision." *Gartside*, 203 F.3d at 1314, 53 USPQ2d at 1774. Furthermore, the record is "closed, in that the Board's decision must be justified within the four corners of that record." *Id.* Thus, the record before the USPTO "dictates the parameters of review" available to the court. *Id.* Accordingly, "the Board's opinion must explicate its factual conclusions, enabling [the court] to verify readily whether those conclusions are indeed supported by 'substantial evidence' contained within the record." *Id.* (citing *Gechter v. Davidson*, 116 F.3d 1454, 1460, 43 USPQ2d 1030, 1035 (Fed. Cir. 1997)).

³ *Zurko*, 258 F.3d at 1385, 59 USPQ2d 1697 ("the Board cannot simply reach conclusion based on its own understanding or experience—or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings."). See also *In re Lee*, ___ F.3d ___, ___, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002) (The Board determined that it was not necessary to present a source of a teaching, suggestion, or motivation to combine the references

because the conclusion of obviousness may be made from common knowledge and common sense of a person of ordinary skill in the art. The court reversed the Board's decision in sustaining a rejection under 35 U.S.C. 103 and stated that "'common knowledge and common sense' on which the Board relied in rejecting Lee's application are not the specialized knowledge and expertise contemplated by the Administrative Procedure Act. Conclusory statements such as those here provided do not fulfill the agency's obligation... The board cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies").

⁴ As noted by the court in *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970), the notice of facts beyond the record which may be taken by the examiner must be "capable of such instant and unquestionable demonstration as to defy dispute" (citing *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961)). In *Ahlert*, the court held that the Board properly took judicial notice that "it is old to adjust intensity of a flame in accordance with the heat requirement." See also *In re Fox*, 471, F.2d 1405, 1407, 176 USPQ 340, 341 (CCPA 1973) (the court took "judicial notice of the fact that tape recorders commonly erase tape automatically when new 'audio information' is recorded on a tape which already has a recording on it").

⁵ *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697; *In re Ahlert*, 424 F.2d at 1092, 165 USPQ at 421.

⁶ *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21. See also *In re Grose*, 592 F.2d 1161, 1167-68, 201 USPQ 57, 63 (CCPA 1979) ("[w]hen the PTO seeks to rely upon a chemical theory, in establishing a prima facie case of obviousness, it must provide evidentiary support for the existence and meaning of that theory."); *In re Eynde*, 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973) ("we reject the notion that judicial or administrative notice may be taken of the state of the art. The facts constituting the state of the art are normally subject to the possibility of rational disagreement among reasonable men and are not amenable to the taking of such notice.").

⁷ *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697. While the court explained that, "as an administrative tribunal the Board clearly has expertise in the subject matter over which it exercises jurisdiction," it make clear that such "expertise may provide sufficient support for conclusions [only] as to peripheral issue." *Id.* at 1385-86, 59 USPQ2d at 1697.

⁸ *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697. See also *In re Lee*, ___ F.3d at ___, 61 USPQ2d at 1435.

⁹ See *In re Lee*, ___ F.3d at ___, 61 USPQ2d 1434-35; *In re Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697 (holding that general conclusions concerning what is "basic knowledge" or "common sense" to one of ordinary skill in the art without specific factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection).

¹⁰ See *In re Soli*, 317 F.2d 941, 945-46, 137 USPQ 797, 800 (CCPA 1963) (the court accepted the examiner's assertion that the use of "a control is standard procedure throughout the entire field of bacteriology" because it was readily verifiable and disclosed in references of record not cited by the Office); *In re Chevenard*, 139 F.2d 711, 713, 60 USPQ 239, 241 (CCPA 1943) (accepting examiner's finding that a brief heating at a higher temperature was the equivalent of a longer heating at a lower temperature where there was nothing in the record to indicate the contrary and where the applicant never demanded that the examiner produce evidence to support his statement).

¹¹ See *Soli*, 317 F.2d at 946, 37 USPQ at 801; *Chevenard*, 139 F.2d at 713, 60 USPQ at 241.

¹² See 37 CFR 1.111(b). See also *Chevenard*, 139 F.2d at 713, 60 USPQ at 241 ("[I]n the absence of any demand by appellant for the examiner to produce authority for his statement, we will not consider this contention.").

¹³ See 37 CFR 1.104(c)(2). See also *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697 ("the Board [or examiner] must point to some concrete evidence in the record in support of these findings" to satisfy the substantial evidence test).

¹⁴ See *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697; *Ahlert*, 424 F.2d at 1092, 165 USPQ 421.